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May 3, 2004

Hand Delivery

Marlene Dortch, Secretary  
Federal Communications Commission  
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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

RE: Petition for Rulemaking

Dear Madam Secretary:

Enclosed for filing please find an original and four copies of GPS Networking's Petition for Rulemaking and Request for Waiver. It seems this may be properly directed to the Office of Engineering and Technology. Please contact my office should there be any questions or concerns about this filing.

Thank you very much for your assistance.

Sincerely,



Anne E. Linton, Esq.  
For GPS Networking, Inc.

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Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
**Washington, DC 20554**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> St., S.W.  
Washington, D.C. 20554

To the Secretary:

PETITION FOR RULEMAKING and REQUEST for WAIVER

Respectfully Submitted,

GPS Networking, Inc

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## EXECUTIVE SUMMARY

GPS Networking is a Colorado corporation that has developed a GPS re-radiation kit. This kit brings the very weak GPS signal into a laboratory, airplane hangar, military troop transports, or fire engine bay where the GPS satellite signal is unavailable. The re-radiated signal available indoors is identical, albeit time delayed, to the signal received by the outdoor antenna. The re-radiated signal can be used to calibrate navigation systems, test GPS receivers, improve navigation systems, and to keep “live” the GPS systems that may be required by soldiers or in emergencies.

In accordance with Section 1.401 of the Commission’s Rules, GPS Networking is seeking action by the FCC to permit the use of re-radiation devices indoors, where the GPS signal cannot reach. This Petition proposes amending Section 15.211 of the Commission’s Rules, permitting only indoor use of re-radiation devices. Should the Commission determine that amending Section 15.211 is not an appropriate vehicle for permitting the indoor use of re-radiation kits, GPS Networking requests that the Commission make such other amendments to its rules that will serve the public interest by allowing the indoor use of these devices.

Because the satellite-based GPS signals are very weak, the signals do not penetrate indoors. The re-radiated signals must be comparably weak to be usable by the GPS receivers that are being tested, calibrated, or kept updated while waiting to be used. Fire and rescue crews using GPS-based navigation systems can reach emergencies faster if their ambulance and engine bays have re-radiation devices active. Time saved in emergencies equals lives saved. Consequently, this use of such devices is clearly in the public interest.

Use of re-radiation kits in underground garages could also enhance the effectiveness of the E 911 system, where a phone is equipped with GPS technology. This could make garages safer and

speed assistance to those in need.

Limiting the use of such devices to indoor and underground uses precludes the possibility of interference with the satellite-generated signal. Because of the limited use proposed and the strong benefits to the public from use of such devices, we urge the Commission to grant this Petition and Waiver.

GPS Networking has been working through the federal government processes to achieve approval of its re-radiation kits for more than two years. At this time, GPS Networking is seeking a waiver of the provisions of Section 2.803 of the Commission's rules as the Commission considers this Rulemaking. By granting such a waiver, GPS Networking will be able to resume its business of supplying its products to the military and public safety workers for their indoor use of GPS Networking re-radiation kits. The waiver sought is for use of these devices indoors according to the same parameters set forth in GPS Networking's experimental license 0184-EX-PL-2001 call sign WC2XSA.

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## **I. Introduction**

GPS Networking, represented by Washington Federal Strategies, respectfully files this Petition for Rulemaking and Request for Waiver. GPS Networking is filing this Petition according to the provisions of Section 1.401 of the Commission's rules to request that the FCC initiate the proper proceeding to change its rules to grant the relief sought herein. GPS Networking is a Colorado corporation that manufactures and sells products designed to enable and enhance the functionality of the global positioning system (GPS).<sup>1</sup> Those products include GPS antennas, cables, testing devices, amplifiers, and other devices. GPS Networking also holds an experimental license from the FCC, call sign WC2XSA, File Number 0184-EX-PL-2001, for a GPS re-radiation device that can be used to bring a GPS signal indoors where the GPS satellite signal cannot otherwise reach. Because of the broad-based functionality of this experimental device and because of the strong public interest in allowing the sale of such devices, GPS Networking is requesting that the Commission modify its rules to allow the commercial

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<sup>1</sup> GPS stands for global positioning system. The system is a network of 24 satellites developed and launched by the U.S. military to provide improved global navigation. The system has been operational for over 15 years. It was widely used by the military during the 1991 Gulf War, after which there was a significant expansion of the base of private and commercial users.

GPS receivers use time and date information from the satellites in conjunction with satellite position information to calculate the position of the receiver. Because the receiver relies upon triangulation in making its calculations, a receiver must get signal from three or more satellites. A receiver which has been turned off or has been out of sight of satellites for several hours or even several days may take three to five minutes to locate the satellites in sight in the sky and then download the almanac (time and date) information that will allow the receiver to calculate its position. Re-radiation of the GPS signals indoors, where the satellite signals cannot reach, can keep troop hand-held receivers updated and fire engines ready to roll.

GPS is now widely deployed in on-board navigation systems on commercial aircraft and in cars. Police, fire and rescue vehicles use GPS to get directions to the locations of emergencies.

manufacture and sale of GPS Networking's re-radiation devices.

## **II. Background**

GPS Networking was founded ten years ago by Mr. Steven Waite, who has worked in the GPS field for more than twenty years. Mr. Waite has extensive experience in troubleshooting GPS receivers and navigation systems. Throughout his work, Mr. Waite was constantly challenged by the difficulties he faced in calibrating GPS receivers and testing navigation systems in a laboratory, where the GPS signals could not reach. In response to this problem, he designed a re-radiation solution for his own use that would extend the reach of the GPS signal into the lab, enabling him to work more effectively and efficiently. This product of Mr. Waite's ingenuity is proving to have many additional applications, which can provide great benefits to the public.

### **A. Description of Re-Radiation Kits**

The device - or kit - includes a GPS receive antenna that is placed on the roof, where it can receive signals from the GPS satellites. The receive antenna is connected to a low loss rf cable. The cable carries the signal received on the roof through a line amplifier, which boosts the signal to compensate for the signal lost in the cable, and feeds the signal into a passive antenna indoors where there is no GPS signal available. The passive antenna re-radiates the same signals received on the roof, but with a time delay from the signal traveling through the cable. As a result, the re-radiation kit makes a signal available indoors that a GPS receiver can use to calculate position. The receiver(s) will calculate the position of the rooftop antenna, because that

is the information available. For calibration purposes, all receivers will be showing the same information. For the purpose of keeping receivers “live,” the receivers will know what satellites are in sight and they will have current almanac data for when the receiver needs to be used. The receivers being kept current will simply shift to the direct satellite signal as soon as that rf signal is available.

## **B. Uses of Re-Radiation Kits**

This kit has numerous applications, described more fully below. All of these applications serve the public interest. The benefits that derive from the use of re-radiation kits include the following: saving lives, faster rescues, more efficient business and military operations, and safer aviation.

### **1. Re-Radiation kits speed fire and rescue workers**

Re-radiation kits can be used in fire engine or ambulance bays to keep the navigation systems in the rescue vehicles live. As technology has advanced, rescue workers have begun to use GPS-based navigation systems to help them respond to fire, safety, and health emergencies more quickly. The navigation systems help to determine a route to the emergency, or to generate an alternative route if the first path is too slow. Emergency medical technicians are often the first to be able to help an injured or sick person, and the sooner the EMT arrives, the better chance they have to save lives. If the navigation system on an ambulance is not “live” the ambulance may have to wait for several minutes before it can be fully effective. Unfortunately, a GPS receiver in motion takes more time to calculate its position than a stationary receiver because the position is constantly changing. A receiver in a fixed location will be able to calculate a route sooner because that route will be calculated from an established position. With proper indoor use

of a re-radiation kit, that ambulance will be ready to go immediately. In emergencies, time saved results in lives saved. This is true for fire crews as well.

## 2. Re-radiation kits help with troop readiness

This application is both military and civilian. While the military has access to spectrum and can employ re-radiation kits with authority from NTIA, there are many military contractors who need commercial access to re-radiation kits for military applications. The re-radiation kits can be installed on a Bradley fighting vehicle. The military personnel inside will then have accurate GPS information about their location, and they will have live GPS receivers if they have to leave the vehicle. This helps to keep the soldiers safer by giving them better tools to use for navigation.

For troops in transit, a re-radiation device used in flight to a hostile area can keep the troops' handheld GPS devices live. Without re-radiation, the calibration time after a transoceanic flight can be especially lengthy because the handheld receiver will have no idea where to look for satellites. The longer it takes to find the satellites, the longer it takes for the receiver to be able to calculate position. For soldiers who may be parachuting into unfamiliar territory, having an up-to-date handheld GPS receiver can be essential to safety and survival. When a re-radiation kit is used in an aircraft, it is shielded from the navigation systems used by the aircraft, to guarantee that there is no interference. With such weak signals, shielding is easy to achieve. This request for authorization of GPS Networking's re-radiation kits under the provisions allowing for tunnel radio systems presumes that any use of the kits would involve indoor, shielded and protected use to avoid any potential for interference.

## 3. Re-radiation kits are used to calibrate aircraft navigation systems.

This approach is used in both the military and civilian context. To provide an example, the military has used re-radiation kits to calibrate the navigation system on Air Force One. Further, re-radiation kits have been used to calibrate and test the navigation systems of our U2 fleet. According to workers at Edwards Air Force Base, the most vulnerable aspect of the legendary U2 is its navigation system because there have been so many advances in navigation since the planes were first developed. The aircraft are in great demand. While the aircraft can be pulled from their hangars for testing of their navigation systems, that approach is costly and time-consuming. To save time and money because the satellite-based GPS signal could not reach into the hangars, hooded GPS re-radiation kits have been tested to see if the calibration and testing can be done indoors, without interference. See Exhibit A showing that no interference resulted.

The world of commercial aviation faces some of the same challenges. Planes in hangars for service and maintenance need work on their navigation systems. But, taking the planes out of the hangar for GPS navigation system work is costly and inefficient. Using re-radiation kits indoors, where GPS signals do not reach, can save time and money for the beleaguered airline industry.

#### 4. Re-radiation kits may improve safety for drivers.

As GPS-navigation systems proliferate in automobiles, especially those available through car rental companies, re-radiation kits may become very useful in underground garages where satellite-based GPS signals do not reach. The reason is simple. A traveler in a strange city is especially likely to rely on the navigation system in the rental car to generate directions. It is far safer for everyone if the driver engages the navigation system while safely parked than for him to try to generate directions while driving in traffic. However, in many underground garages, there

is no GPS signal available. So, the driver has no choice but to drive to the street level before getting directions. So, by installing a re-radiation kit underground, away from any chance of interference, the driver can engage the navigation system with less distraction and greater safety to himself and others.

It is possible that a re-radiation kit might provide benefits to rescue workers responding to an E-911 call from a location such as an underground garage where no satellite-based GPS signal is available.

As noted above, these re-radiation kits have been designed specifically for indoor usage, where there is no available GPS signal. Signals from the kits must not be boosted beyond the tolerance of GPS receivers or the utility of the kit would be destroyed. A signal that is too strong will be rejected by a GPS receiver.

### **C. Characteristics of GPS Signals**

The GPS satellites produce a signal that is measured in fractions of picowatts when it reaches the earth. Those signals are not strong enough to pass through brick walls or gypsum wallboard or many other common building materials.<sup>2</sup> The signals are also blocked by the armor on military aircraft and personnel carriers and fighting vehicles. Therefore, soldiers in transport inside of those armored vehicles do not get signals for their handheld GPS devices. The satellite-based signals cannot reach many places where they might be useful. The re-radiation kit has been designed for indoor usage to fill in the gaps where there is no GPS signal available. The

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<sup>2</sup> Exhibit B is a report on the results of testing conducted by MET Labs of a GPS Networking re-radiation kit. The tests demonstrate the significant signal attenuation that resulted from placing common building materials between the re-radiation device and a spectrum analyzer. The report also contains information on practical tests of the kit in use.

indoor use has been engineered to deliver a similarly weak signal, which will be contained by the walls of the lab, the armor on a plane or fighting vehicle or the metal structure of a hangar.

When properly used in places where the satellite signals cannot reach, the re-radiated signals will be blocked in, just as the satellite signals are blocked out.

#### **D. Regulatory Status**

GPS Networking received a letter from the FCC in the late spring of 2001. The letter instructed GPS Networking to cease and desist from marketing its re-radiation kits because those kits were not properly authorized under the Commission's rules. GPS Networking has complied with the FCC's letter.<sup>3</sup> Subsequently, GPS Networking sought and received an experimental license for the use of re-radiation kits at its facility in Pueblo, Colorado. Mr. Waite has met with the Interdepartment Radio Advisory Committee Frequency Assignment Subcommittee run by NTIA to discuss re-radiation kits with the subcommittee as a whole and with individual agency representatives. The spectrum used by these devices, 1575.42 MHz and 1227.6 MHz, is allocated for space to ground radionavigation, and it is licensed to the federal government. Thus, it is spectrum under the control of NTIA. The Department of the Army has brought an application to NTIA to authorize use of re-radiation kits by the military. That proceeding has been stalled for over a year. GPS Networking has met with other agencies that have indicated an interest in GPS re-radiation issues, including the Department of Transportation, NASA, FAA and

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<sup>3</sup> When GPS Networking was founded in the early 1990s, Mr. Waite contacted the FCC to request information about the proper way to seek licenses for re-radiation kits. He was informed that the FCC did not have any regulatory requirements on re-radiation kits. And based upon the Commission's early assurance that this was permitted, GPS Networking went forward with making and selling re-radiation kits.

Treasury. The current view put forth by NTIA is that GPS Networking should seek regulatory clearance for commercial sale of the devices from the FCC while NTIA continues its process on the request from the Army. However, because of the complexity of the spectrum allocation and jurisdictional issues, there has been no clear path to authorizing the use of re-radiation kits.

At this point, GPS Networking is seeking to have the FCC recognize its re-radiation kits as tunnel radio systems, which are covered by Section 15.211 of the Commission's rules. This would allow the FCC to exempt GPS Networking's re-radiation kits from regulation under Part 15, but it would allow NTIA to regulate the devices as appropriate to the government. Further, because a tunnel radio system designation would only permit indoor and tunnel uses, there would be no chance of interference with satellite-based GPS nor would there be any authority for use of a re-radiation kit generally.

### **III. Discussion**

#### **A. Requested Amendment to Section 15.211**

GPS Networking is requesting that the Commission amend Section 15.211 of its rules to allow the commercial manufacture and sale of re-radiation kits for use indoors, including in tunnels, caves and underwater. Further, GPS Networking requests that the Commission permit the use of re-radiation kits for other indoor uses where the satellite-based GPS signal does not reach such as in ambulance or fire engine bays. We ask the Commission to seek comment on the use of re-radiation kits in underground parking garages to provide location information to GPS-enabled phones for E-911 emergencies and to ensure the proper functioning of navigation

systems in cars, and for such other indoor applications that may advance the public interest.

GPS Networking is requesting this amendment to Section 15.211 because its re-radiation kits, which re-transmit the GPS L-1 and L-2 frequencies - 1575.42 MHz and 1227.6 MHz, have an output power that is .0001 picowatts. Very low power devices such as these are governed by Part 15 of the Commission's rules concerning unlicensed devices. Generally, Part 15 does not apply to the use of GPS spectrum, unless a radio system falls under the provisions of Section 15.211 and is considered a tunnel radio system. Because of the installed base of GPS receivers, the utility of re-radiation kits would be defeated if this technology was shifted to other spectrum. The purpose of the kits is to bring indoors a valid GPS signal than cannot otherwise penetrate the indoor area, therefore, the kits must operate on the same spectrum used by the satellite-based GPS to be effective. While there are GPS simulation devices in the marketplace, the cost of a simulator is more than ten times greater than the cost of a re-radiation kit. As a result, simulators are cost prohibitive for most users, especially fire departments, EMTs, police departments and other first responders. There is a clear public interest in the use of these devices, and there are public safety and security interests which can be met by the proper use of GPS Networking's re-radiation kits.

#### **B. Technical Information on Re-Radiation Kits**

The signal characteristics of the frequencies used by re-radiation kits, the propagation of those signals, the signal attenuation, and the other technical details governing re-radiation kits are set out in Exhibit C to this Petition. The Exhibit contains information submitted by the

Department of the Army to NTIA as the Army sought government review and clearance of re-radiation kits for government use. Further, technical information was submitted to the FCC previously in the Petitioner's request for experimental authority to work with re-radiation kits at its facility in Pueblo, Colorado, file number 0184-EX-PL-2001. The experimental license was granted in June 2002. The experimental licensing process included review by the FCC and NTIA, as well as all of the participants in the IRAC.<sup>4</sup>

Through the experimental license process, the FAA was provided with a GPS re-radiation kit which it used to test the device and evaluate its characteristics. In filing this Petition for Rulemaking, GPS Networking is seeking regulatory action that would allow, under a revised Section 15.211, only the sort of low power, indoor operation that has been previously permitted by the FCC and other agencies of the federal government.

### **C. Background on GPS and Some of Its Applications**

GPS-based navigation systems are some of the most effective navigation tools in existence today. Those systems rely on receipt of location and time signals from a constellation of satellites circling high above the earth. A GPS receiver will lock onto three or more satellites, receive a large volume of location and almanac information from each satellite and calculate a position on the earth based on calculations from the information transmitted by the satellites. Three or more satellites are necessary because the calculations depend upon a triangulation methodology. With the information available from the satellites, even an inexpensive GPS

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<sup>4</sup> As noted previously, GPS Networking's president Steven Waite met with representatives of the Interdepartment Radio Advisory Committee's Frequency Assignment Subcommittee in August 2001 to present information on re-radiation kits and discuss the uses for which these devices might be appropriate.

receiver can give a location that is accurate to within five meters.

The signals from the satellites are such low power when they arrive on earth that they cannot penetrate walls, rendering GPS receivers ineffective indoors. GPS receivers are designed to search for and analyze these weak signals. For a re-radiated signal to be effective, it must be similarly weak, so that it does not overpower the receiver. Indoor use of these kits will not lead to interference with the outdoor use of receivers because the indoor signal will not be detectable outside, just as the outdoor signal does not get inside.<sup>5</sup> Further, the re-radiated signal will have a time stamp from the rooftop receive antenna. If the re-radiated signal is then sensed by a device that also gets a real signal from the satellite - because of an open window or other anomaly - the re-radiated signal will have a delay due to traveling through the cable. Receivers which might perceive both a satellite based and re-radiated signal will not register a steady signal, which will be an indicator for a re-radiation device user that there is some change in the environment shielding the signals from one another. At that point, the re-radiation device can be turned off, ameliorating any potential interference problems. In fact, several potential customers are proposing the use of re-radiation device "kill switches" to shut off the re-radiation kit anytime the indoor environment has a hatch or door opened, to further avoid the chance of overlapping signals or any interference. Since the re-radiated signal is blocked by a standard gypsum-based wallboard wall, restricting the use of the devices to indoor application should preclude the possibility of interference under almost all circumstances.

#### **D. Spectrum and Regulatory Issues**

As previously described, the signals that are re-radiated indoors by GPS Networking's

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<sup>5</sup> See Report from MET Laboratories, Spring 2003, attached as Exhibit B.

kits are the same signals that the GPS satellites generate, using the same frequencies. Although this could pose an interference problem if both signals were generated outdoors, GPS Networking's proposal for authorization as tunnel radio systems and for strictly indoor use - possibly including kill switches, hooding and shielding where appropriate - avoids interference by requesting authorization that is extremely limited. Nonetheless, because GPS Networking is proposing use of the GPS L1 and L2 frequencies, 1575.42 and 1227.6 MHz respectively, it is necessary to seek approval from the FCC, including an amendment to its Rules, to make and market these devices.<sup>6</sup>

GPS Networking proposes that the FCC authorize the use of these kits under Section 15.211 of its Rules, which allows for the use of radio frequency devices in tunnels, mines, underwater and in other areas where natural barriers prevent harmful interference from devices used there. According to Section 2.106 of the Commission's Rules, the spectrum used by GPS Networking's re-radiation kits is designated to be used for space to earth radiolocation/radionavigation services. In fact, the use of a re-radiation kit in a tunnel, underwater, or inside a building shielded from the outside provides an augmentation to the radiolocation/radionavigation service provided by GPS. By permitting the use of GPS Networking's re-radiation kits under Section 15.211, the use of re-radiation kits does not challenge the spectrum allocation or service authorization, as tunnel radio systems are exempt

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<sup>6</sup> The GPS frequencies are government spectrum, licensed by the National Telecommunications and Information Administration of the Department of Commerce (NTIA.) According to Section 15.205 of the Commission's rules, as a general rule only spurious radio frequency emissions are permitted on these frequencies. However, section 15.211 of the Commission's rules permits certain radio systems to be used under circumstances where the frequencies in use are shielded from outside by natural barriers or walls. 47 C.F.R. Section 15.211.

from those considerations. And, when used as “tunnel radio systems,” re-radiation kits provide an enhancement of the current radiolocation/radionavigation services provided, serving the public interest by improving public safety and helping to save lives.

To preserve the integrity of the GPS satellite system and to provide further assurance that these devices would not cause harmful interference, GPS Networking proposes complying with the equipment certification provisions of Section 15.201 of the Commission’s Rules. This regulatory compliance should provide an added safeguard to set standards for GPS Networking’s re-radiation kits to ensure that they will not be modified upon installation. This will ensure that when properly installed, there is no chance for spurious emissions.<sup>7</sup> Further, GPS Networking proposes that its re-radiation kit be included in the permissible kits authorized under Section 15.204 of the Commission’s Rules. In Attachment A, GPS Networking has set forth proposed text for an additional subsection to Section 15.211 of the Commission’s Rules.

If the Commission believes that authorization of these devices is more appropriate under a different regulatory provision, GPS Networking requests that the FCC amend such rules as may be necessary to allow it to manufacture and market these devices commercially. In Attachment B, there is proposed language for such an amendment to the Commission’s Rules.

**E. The Public Interest Would Be Served by Granting This Petition**

Why are these devices necessary or useful? As noted in previously, a GPS receiver needs a large amount of almanac data to be able to calculate a position. Further, the receiver needs to

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<sup>7</sup> In addition to the technical information presented in the MET Labs report, as noted above, Exhibit A contains a test report from the Department of the Air Force demonstrating that the use of hooded GPS re-radiation kits at Edwards Air Force Base has posed no risk to test ranges.

know where in the sky to find a satellite. Finding satellites and amassing almanac data takes time. Indoors, the barrier to using GPS is primarily access to the satellite signals. In an indoor setting, GPS Networking's re-radiation kits remove this barrier, providing significant benefit to the public.

To reiterate some of the benefits of the use of GPS re-radiation: In maintaining and repairing navigation systems on aircraft, it is more effective to work on the plane in the hangar. However, without re-radiation, the aircraft must go through the time consuming and expensive process of leaving the hangar, halting all other repair and maintenance work, until the navigation system has been checked. With a re-radiation system in place, the turnaround time is significantly shortened, costs are reduced, efficiency is increased, and resources are conserved.<sup>8</sup>

The military has found that its paratroopers and infantrymen rely on handheld GPS navigation devices to guide their movements in the field. Those devices are more effective if they have been actively receiving re-radiated GPS signals while the soldiers are on a plane or in troop deployment vehicles. Then, as the troops leave their vehicles or jump from planes, the individual handheld GPS receivers are active and instantly usable. This saves critical time for our soldiers. While military use of the spectrum is governed by NTIA, commercial defense contractors wishing to work with re-radiation kits need the ability to purchase and use these devices.

Another significant benefit to the public is in the realm of public safety. Most ambulances and fire engines are now equipped with GPS-based onboard navigation systems.

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<sup>8</sup> With current strains on the domestic airline industry, any efficiencies should be welcomed to keep the companies in business.

The emergency vehicles are stored indoors in bays, where GPS satellite signals do not reach. Thus, for the navigation system to function, the fire truck or ambulance needs to wait outside for several minutes to gather the data necessary for its GPS system to be effective. With a re-radiation kit active in the bay, the GPS navigation system in a fire truck will know which satellites to look for, and it will have current almanac data so that it will be able to derive a position fix and generate a route to the emergency immediately. The time saved equates to lives saved.

Similarly, GPS re-radiated signals accessed in underground garages allow a traveler to access an auto's navigation system to get directions while sitting safely in a parking space. A driver otherwise must leave the garage and engage the navigation system while en route, posing a danger to himself, his fellow drivers, and pedestrians. Especially for travelers in new cities, the use of navigation systems in cars is growing in popularity. The use of re-radiation devices indoors and underground offers the potential for safer driving and fewer lost travelers.

Should the Commission make the proposed revision to its rules, the public can benefit from enhanced aircraft safety, improved public safety response, safer drivers, and more efficiencies in a range of businesses - all from the proper use of re-radiation kits. Further, Commission action will add support to the military's case for the use of re-radiation kits.

#### **IV. Request for Waiver Pending Outcome of Proceeding**

GPS Networking requests that the Commission waive its rules to allow for the equipment authorization, manufacture and sale of its re-radiation kits while this proceeding is pending. In the past several years, GPS Networking has gone through the process of securing an experimental

license for the use of its own re-radiation kit at its own facilities. While this process was required by law, it also has given the government an opportunity to examine the kit and make some determination about its risks to navigational systems. The experimental license application process took nearly 11 months to complete. In part, that was the result of investigation by some other reviewing agencies, such as the FAA, which have public mandate to ensure the safety of aeronautical navigation. To facilitate that investigation, GPS Networking provided the FAA with a sample kit, which FAA sent to one of its laboratories for testing. In the end, the experimental license was approved with an output power limitation of .0001 picowatts and a condition that there must be coordination with the FAA's Northwest Coordinator as necessary. Since the petitioner is proposing only indoor use of these devices, and because the technical parameters are such that operation of a device indoors would clearly be far below the FAA's conditions as currently stated, it seems that no risk would be posed by grant of this waiver.


GPS Networking is an entrepreneurial firm. It has customers who know of the potential for use of these devices, and its business could grow if manufacture and sale of the devices was allowed. Those customers are motivated not only by commercial concerns but they are also strongly motivated by the public interest and safety concerned outlined above. Delaying them in their use of this technology is not necessarily in the public's best interest. The FAA's review seems to have precluded the possibility of risk from operation of these devices in an indoor setting. As our world faces growing challenges to respond rapidly in emergencies, it makes sense to bring to market a product that can aid in achieving that goal. Police, fire, and EMS personnel can be more effective if they arrive promptly. Good navigational systems, without waiting for the systems to become active, can help save lives and property. Consequently, bringing these

devices to market sooner is very much in the public interest.

## **V. Conclusion**

For the reasons stated above, GPS Networking respectfully requests that the Commission amend its rules to permit the indoor use of GPS re-radiation kits, either under Section 15.211 of the Commission's rules or under such other provision as the Commission finds appropriate, and that the Commission grant a waiver to permit GPS Networking to manufacture and sell re-radiation kits while this matter is pending before it.

Respectfully Submitted for GPS Networking

A handwritten signature in black ink, appearing to read "Anne Linton". The signature is fluid and cursive, with the first name "Anne" and last name "Linton" clearly distinguishable.

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